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Request for grant of a patent

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1. Your reference	JC/SC/spy	
2. Patent application number *(The Patent Office will fill in this part)*	0310749.7	09 MAY 2003
3. Full name, address and postcode of the or of each applicant *(underline all surnames)*	GOLF INNOVATION (UK) LTD. 7 Rose Court, North Bank, Hassocks, West Sussex, BN6 8JG.	
Patents ADP number *(if you know it)* 8628513001		
If the applicant is a corporate body, give the country/state of its incorporation	GB	
4. Title of the invention	GOLF TROLLEY WHEEL	
5. Name of your agent *(if you have one)* "Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*	~~G.F. REDFERN & CO.~~ ~~LYNN HOUSE~~ ~~IVY ARCH ROAD~~ ~~WORTHING~~ ~~WEST SUSSEX. BN14 8BX~~	FRY HEATH & SPENCE LLP THE GABLES, MASSETTS ROAD, HORLEY, SURREY, RH6 7DQ. PF51/77 17/6/04
Patents ADP number *(if you know it)* ~~6435356001~~	~~1412002~~	0845955400 1 ~~5378273001~~

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number	Country	Priority application number *(if you know it)*	Date of filing *(day / month / year)*

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application	Number of earlier application	Date of filing *(day / month / year)*

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:* *a) any applicant named in part 3 is not an inventor, or* *b) there is an inventor who is not named as an applicant, or* *c) any named applicant is a corporate body.* *See note (d))*	YES

Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form	
Description	
Claim(s)	3
Abstract	1
Drawing(s)	2 + 2

10. If you are also filing any of the following, state how many against each item.

Priority documents	
Translations of priority documents	
Statement of inventorship and right to grant of a patent *(Patents Form 7/77)*	
Request for preliminary examination and search *(Patents Form 9/77)*	1
Request for substantive examination *(Patents Form 10/77)*	1
Any other documents *(please specify)*	

11. I/We request the grant of a patent on the basis of this application.

Signature

Date 9 May 2003

12. Name and daytime telephone number of person to contact in the United Kingdom

Jerry Bridge-Butler
01903 820466

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Golf Trolley Wheel

This invention relates to a novel wheel for use particularly, but not exclusively, with a golf trolley.

Golf trolleys commonly comprise a substantially triangular chassis provided with wheels at the lower corners, and means to support a bag of golf clubs. The trolleys are provided with a handle and are pushed or pulled along as the player traverses the course.

However, golf trolleys are banned on golf courses during bad weather or damp conditions, because the wheels can damage the surface of the course and leave muddy tracks.

The above problem is encountered with any wheeled vehicle used on a golf course, for example a golf buggy for transporting the players.

The present invention is intended to solve some of the above problems.

According to the present invention a vehicle wheel for use with a golf course traversing vehicle is provided with a plurality of studs extending radially from the wheel rim.

In a preferred construction the studs may be adapted to penetrate the turf over which the wheel passes, so as to aerate the turf. The studs can be provided with a parabolic cross-section in the plane which is co-planar with the wheel.

With this parabolic shape the studs can enter and exit the turf during rotation of the wheel, without digging any turf from the ground.

Preferably the vehicle may be a golf trolley adapted to carry a bag of golf clubs. In an alternative construction the vehicle may be a golf buggy adapted to carry golfers and their clubs.

In one construction the studs are attached directly to the wheel of the vehicle. The studs can be integrally formed with the wheel, or attached to the rim in any suitable arrangement. However, in a preferred construction the studs are provided on a base, which is adapted to be fitted to the outer surface of the vehicle wheel.

The base may be a strip of resilient material, provided with attachment means at either end, so it can be wrapped around the wheel and held in place by the attachment means. The attachment means can be any suitable mechanism, for example press studs. However, in a preferred construction the attachment means can be the two opposing surfaces of a hook and loop fastener.

The studs and the base can be constructed from one piece of resilient material. In a preferred construction the base and studs may be constructed from a PVC compound of Shore A74 harness or similar. With this arrangement the single piece can be injection moulded during manufacture.

In an alternative construction the studs may be individually constructed and attached to the base. The studs may comprise a base portion and a body portion, in which the base portion can be provided with the male portion of an attachment means, and the body portion can be provided with the female portion of the attachment means. The base portion can be disposed adjacent the inner surface of the base, with the male section of the attachment means protruding through an aperture provided in the base. The body portion can be attached to the base portion via the attachment means which protrudes through the base.

In a preferred construction the base can be substantially the same dimensions as the outer peripheral rim surface of the wheel. The base may be

provided with approximately 34 studs, which are formed into two off set columns of 17 studs, substantially parallel to the long edge of the base.

Preferably the base is adapted to be fitted to a golf trolley wheel, and can be between substantially 70mm and 75mm in width. The columns of studs can be substantially 36mm apart, with substantially 41mm between each stud in a column. The columns can be offset so that the studs in one column are substantially half way along the gap between the studs in the adjacent column.

In one construction the short ends of the base are angled at approximately 45 degrees to the long ends. This is so the base can be secured in position without the attachment means interfering with the position of any of the studs.

The studs can be between substantially 23mm and 30mm in length, and 20mm wide at their base. Preferably the studs may be substantially parabaloid in shape.

The invention also includes a set of studs for use with a vehicle wheel for use with a golf course traversing vehicle, in which the studs are realisably attachable to the wheel rim, and extend radially from the wheel rim in use.

The invention also includes a base for use with a vehicle wheel for use with a golf course traversing vehicle, in which the base is adapted to be attached to the wheel rim in use, and is provided with a plurality of studs which extend radially from the wheel rim in use.

The invention further includes a golf course traversing vehicle provided with wheels provided with a plurality of studs, a set of studs or stud apparatus as described above.

The invention can be performed in various ways, but one embodiment will now be described by way of example, and with reference to the accompanying drawings, in which:

Figure 1 is a top view of apparatus according to the present invention;

Figure 2 is a side view of the apparatus as shown in Figure 1;

Figure 3 is a side view of the apparatus as shown in Figure 1 in use; and,

Figure 4 is a cross-sectional side view of a section of the apparatus as shown in Figure 1.

As shown in Figure 3 a vehicle wheel in the form of golf trolley wheel 1 is provided with a plurality of studs 2 extending radially from the wheel rim 3.

As shown in Figures 1 and 2, the studs 2 are mounted on a base 4, which is constructed from a resilient material. The base is provided with the two opposing surfaces of a hook and loop fastener 5 and 6 at either end. The base is further provided with angled end edges 7 and 8, adjacent which the surfaces 5 and 6 are provided. With this arrangement the surfaces 7 and 8 can be attached together, without a gap being present between the studs 2 when the base 4 is wrapped around the wheel rim 3, as shown in Figure 3.

As shown best in Figure 4 the studs comprise a base portion 9 and a body portion 10. The base portion comprises a collar 11 and the male portion 12 of a connection means. The body portion 10 is provided with the female portion 13 of the connection means. The base portion 9 is disposed on the inner surface of the base 4, with the male portion 12 extending through aperture 14 provided in the base 4. The body portion is disposed on the outer surface of the base 4, and the stud 2 is

held in place by means of the connection means being forced together. The base portion 9 is further provided with an extension 15, which is adapted to purchase the wheel rim 3, as shown in Figure 3, to help keep the base 4 in position during use.

The body portion 10 of the studs 2 are paraboloid in shape, with a parabolic cross section in the plane which is co-planar with the wheel, as shown in Figures 3 and 4. This shape allow the stusd 2 to penetrate turf over which the wheel 1 passes, which aerates the turf, and to exit the turf without digging any turf from the ground.

The base 4 is substantially 70mm in width, and is provided with 34 studs 2, which are arranged into two columns 16 and 17. The columns 16 and 17 are substantially 36mm apart, with substantially 41mm between each stud 2 in a column 16 or 17. The columns 16, 17 are offset so that the studs 2 in one column are substantially half way along the gap between the studs 2 in the adjacent column. The body portion 10 of the studs 2 are substantially 23mm in length, and 20mm wide at their base.

In an alternative embodiment (not shown) the base and studs are formed from a single piece of injection moulded PVC of Shore A74 hardness. With this arrangement the base and studs can be manufactured in an alternative manner.

In a further alternative embodiment, (not shown) the studs comprise a body portion substantially similar in shape to body portion 10 as shown in Figures 1-4, however, the body portions are provided with a bolt extension from their base, adapted to be received in bolt holes provided in the wheel rim. With this arrangement the studs can be screwed into place when needed and removed when no longer required. It will be appreciated that with this arrangement a set of studs for use with a wheel can be provided.

In one further embodiment the studs are formed as an integral part of the wheel, and the whole wheel is removed from the trolley and replaced with a traditional trolley wheel when the studs are no longer needed.

In another embodiment the wheel is the wheel of a golf buggy or cart

Thus apparatus, a set of studs, or a wheel is provided which allows a golf course traversing vehicle to be used during inclement conditions. The studs hold the wheel rim away from the turf, so no tracks are made, and the studs penetrate the turf in order to aerate it, and improve the surface over time.

Claims:

1. A vehicle wheel for use with a golf course traversing vehicle is provided with a plurality of studs extending radially from the wheel rim.

2. A vehicle wheel as claimed in Claim 1 in which the studs are adapted to penetrate turf over which the wheel passes, in use.

3. A vehicle wheel as claimed in Claim 2 in which the studs are provided with a parabolic cross-section in the plane which is co-planar with the wheel.

4. A vehicle wheel as claimed in Claim 3 in which the wheel is provided with 34 studs.

5. A vehicle wheel as claimed in Claim 4 in which the studs are arranged into two columns of 17.

6. A vehicle wheel as claimed in Claim 5 in which the two columns of studs are substantially 36mm apart, with substantially 41mm between each stud in a column.

7. A vehicle wheel as claimed in Claim 6 in which the two columns are offset so that the studs in one column are substantially half way along the gap between the studs in the adjacent column.

8. A vehicle wheel as claimed in Claim 7 in which the studs, are between substantially 23mm and 30mm in length and 20mm wide at their base.

9. A vehicle wheel as claimed in any of the preceding Claims in which the studs are integrally formed with the wheel.

10. A vehicle wheel as claimed in any of Claims 1-8 in which the studs are removable from the wheel.

11. A vehicle wheel as claimed in any of Claims 1-8 in which the studs are provided on a base, which is adapted to removably attach to the rim of the wheel.

12. A vehicle wheel as claimed in Claim 11 in which the base is a strip of resilient material, which is provided with attachment means adapted to attach one end of the base to the other around the wheel.

13. A vehicle wheel as claimed in Claim 12 in which the attachment means are the two opposing surfaces of a hook and loop fastener.

14. A vehicle wheel as claimed in Claim 13 in which the short ends of the base are angled at approximately 45 degrees to the long ends.

15. A vehicle wheel as claimed in Claim 14 in which the base and the studs are formed from a single piece of resilient material.

16. A vehicle wheel as claimed in Claim 14 in which the studs comprise a base portion and a body portion, in which the base portion is provided with the male portion of an attachment means, and the body portion is provided with the female portion of the attachment means, and in which the base portion and the body portion can be attached together with the male section of the attachment means protruding through an aperture provided in the base.

17. A vehicle wheel as claimed in Claim 16 in which the base is substantially the same dimensions as the outer peripheral rim surface of the wheel.

18. A vehicle wheel as claimed in Claim 17 in which the base is between substantially 70mm and 75mm in width.

19. A vehicle wheel as claimed in any of the preceding claims in which the wheel is adapted for use with a golf club bag trolley.

20. A vehicle wheel as claimed in any of Claims 1-18 in which the wheel is adapted to be used with a golf buggy or cart adapted to carry golfers and their clubs.

21. A vehicle wheel substantially as described herein and as shown in Figure 3.

22. A set of studs for use with a vehicle wheel according to Claim 10.

22. A base for use with a vehicle wheel according to any of Claims 11-21.

23. A golf course traversing vehicle provided with wheels according to any of Claims 1-21.

Abstract

A vehicle wheel for use with a golf course traversing vehicle is provided with a plurality of studs extending radially from the wheel rim.

Fig 1

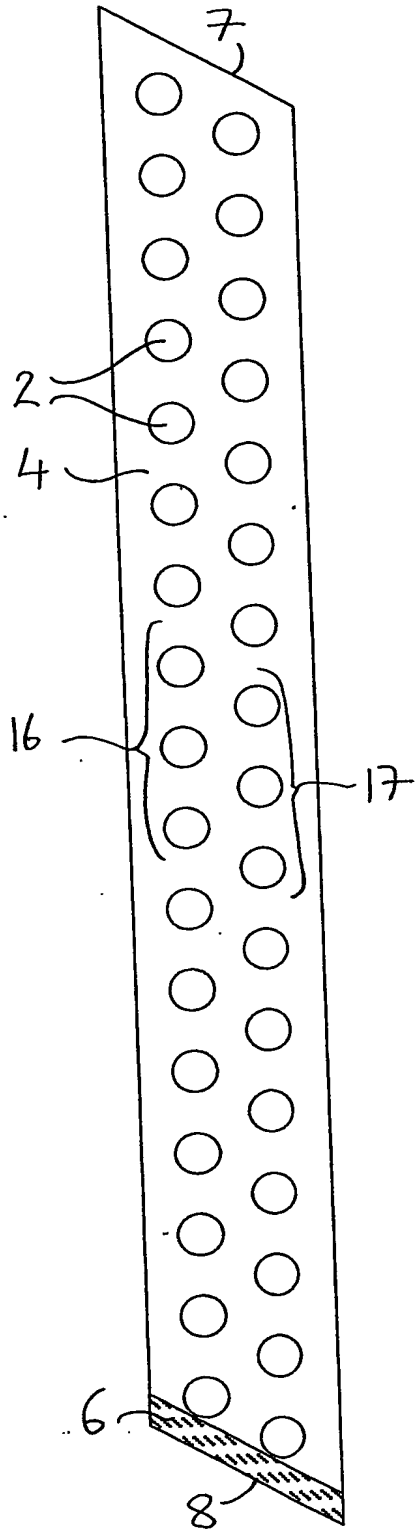


Fig. 2

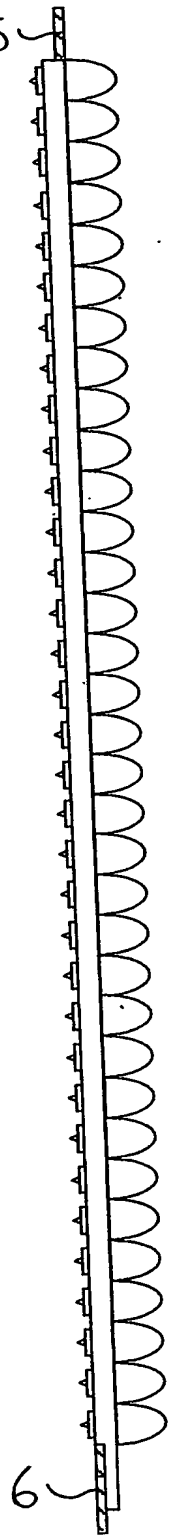


Fig 3

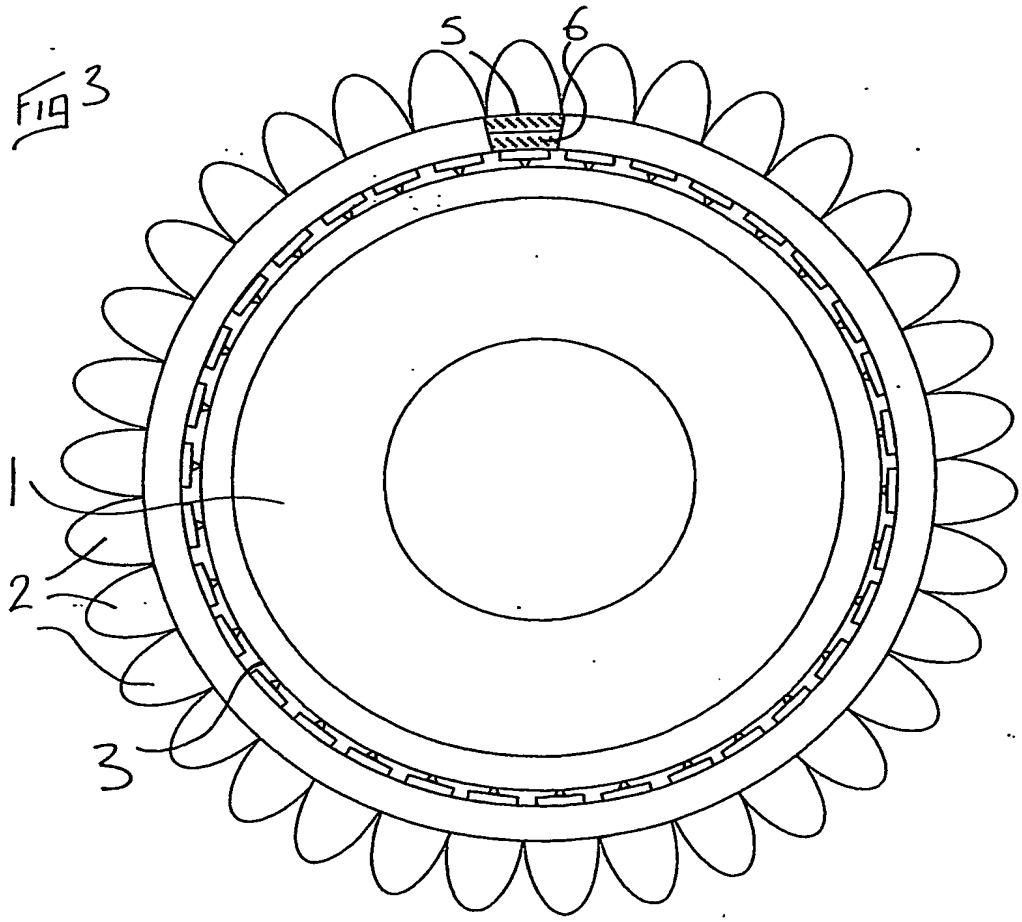
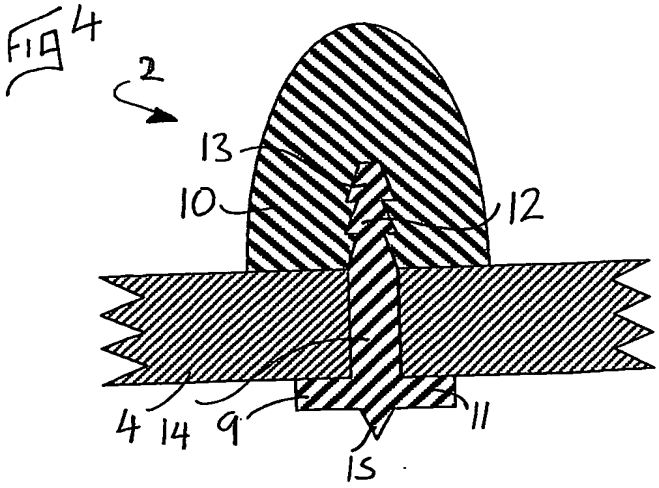


Fig 4



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